FOSTER WHEELER ENVIRONMENTAL CORPORATION

Interoffice Memorandum

TO: Lee Haymon
Project Manager

FROM: Cindy Snyder
Database Management/Chemist

DATE: April 3, 2001

RE: Cornell-Dubilier Electronics Superfund Site

The following information corresponds numerically to the questions posed by Environ in their fax of March 28, 2001:

1) Structure notes which explain all of the data fields, are included as Attachment A to this memo.

2) Csample – This file contains sampling information for environmental samples.
Ctest – This file contains laboratory information for environmental samples in addition to the sampling information.
Cresult – This file contains analytical results for environmental samples. Each record is the data result for a specific compound for a specific sample.
Ctestd – This file contains information for duplicate samples.
Cresultd – This file contains analytical results for duplicate samples.
Ctestb – This file contains the information for blanks.
Cblank – This file contains the analytical results of blank samples.

3) The tables can be joined by various fields which are listed in Attachment B.

4) Res_types are also explained in Attachment A.

5) Soil and groundwater are either "S" or "W" in the Samp_Type column. Field and trip blanks are listed as the sample type for which they are blanks (i.e., soil field blanks will be S). The following IDs will help decipher soil from water for specific areas:
BSB – building borings soil
DSS – drain system sediments
DSW – drain system water
TP – test pit soil
TPW – test pit water
MW – monitoring well soil
MWG – monitoring well perched water

SS – surface soil
GW – groundwater
SG – soil gas

6) ER_Q1, ER_Q2, and ER_Q3 contain the expert (validated) qualifiers. Each column could only hold one character, so there are three columns for qualifiers. Therefore, a qualifier of UJN would be divided between the three columns – "U", "J", "N" – and the three columns must be added together for the full sample qualifier.

7) Limit_1 is the method detection limit for a sample result and Limit_2 is the practical quantitation limit for a primary or blank sample if different from the MDL.

8) Attached is a list of CAS numbers and their corresponding compound names (see Attachment C).

: Attachments

ATTACHMENT A

STRUCTURE NOTES FOR LA. .A.DBF, GIS/Key VERSION 3

FILE LAYOUT FOR ELECTRONIC DOWN LOAD TO GIS/Key

	Remark	Required	Justify	Field Name 10 Character	Type	Len	Dec	Notes (Default parameters)
A	user	X*	L	SITE_ID	C	15		Well or sampling location as labeled on the GIS\Key Map. An entry in SITE_ID is required for all Primary results, duplicates, and splits. Spike results may be associated with samples from another location, and therefore SITE_ID is not required although recommended if appropriate. The import routine requires all sites to be in the project database.
B	user		L	SP_ID	C	7		Sample Period (EVENT_ID) is used to group QA/QC data to within the data range of the sample period. An entry in the EVENT_ID field is required for Blanks, Control Samples and Spikes. The import routine requires the EVENT_ID to be defined in the project database.
C	lab	X		SAMP_TYPE	C	1		Sample types are <W>ater, <S>oil, Sediment, Solid. Others sample types can be added, but these are not supported by GIS\Key. The import routine requires < W, S> entry.
D	lab	X	L	RES_CODE	C	4		Preliminary code used to determine the type of chemical result. See notes at end of table for details of valid entries. RES_CODE is used by the GIS/Build routine to derive the GIS\Key RES_TYPE and RES_CLASS fields. Initially assigned by the lab and modified as required by the user to reflect sample status not known by the lab.
E	GIS	Internal		RES_CLASS	C	1		Assigned by GIS/Build from the RES_CODE field, this code refers to the type of result received from the lab. Allowable RES_CLASS entries are <P>rimary/duplicate/split|<C>ontrol sample|<B>lank sample| and <S>pike sample.
F	GIS	Internal	L	RES_TYPE	C	3		Assigned by GIS/Build from the RES_CODE field, this code works in conjunction with RES_CLASS to describe the type of result. It consists of a one character code, a test sequence number, and a result occurrence.
G	lab			RES_COLUMN	C	1		The column number of a multiple column test. RES_COLUMN should = 0 for the result set of record of a record. This corresponds to a RES_CODE result set occurrence = 0 for the result set of record. For other result sets, the column number of the test should be given. Used primarily for IRPIMS reporting.
H	lab	X*	L	RES_ORIG	C	3		Points to the originating result of a result set of record in a multiple column or dilution test. A result set of the record may be a combination of one or more column/dilution tests. The RES_ORIG points to the result in the test run from which the result of the record came and should equal the last 3 characters of the RES_CODE for that result. Used primarily for IRPIMS reporting.
I	lab	X*		SURROG_FLG	L	1		The field is set to "T" for a surrogate result and "F" for all other result types.
J	user		L	SAMP_ID	C	15		SAMP_ID is the unique identifier provided to the laboratory on the sample bottle.
K	user		L	SAMP_ID2	C	15		SAMP_ID2 is used ONLY for Field Spike Duplicates or for Blind Control Sample Duplicates.
L	user	X*		SAMP_DATE	D	8		Date sample was collected (mm/dd/yy format). Required for all results except blanks, spikes and control samples.
M	lab/user	X*		SAMP_TIME	C	5		Time sample was collected (##:## 24hr format). Required for all primary, duplicate, split and surrogate results but not required for blank, spike, and control sample results. If not required and not specified, the import routine enters a default of 00:00.
N	user	X*		SAMP_DEPTH	N	8	3	Depth below ground surface in meters (metric) or feet (American) at which sample was collected. Required for SAMP_TYPE = <S>, Recommended for SAMP_TYPE = <W>. Depths above ground surface are assigned a negative number. Note that primary key in American version is based on depth measurements to a hundredth of a foot only.
O	user			S_DEPTH	N	8	3	Depth below ground surface in feet to the top of the sample interval range.
P	user			E_DEPTH	N	8	3	Depth below ground surface in feet to the bottom of the sample interval range.
Q	user	X*	L	CASE_ID	C	5		Case and blank ids or case and QA/QC IDs are used to associate primary results with quality control results. CASE_ID is a required entry for quality control data and should be entered for primary results if quality control data is being entered. For small projects, many GIS\Key users use sampling event as CASE_ID. IRPIMS projects should enter the IRPIMS site in the CASE_ID.
R	lab/user	X*	L	SDG_ID	C	25		SDG or sample delivery group ID. This field (in combination with CASE_ID) is used to associate rinsate blank results with primary results. Required for rinsate blanks. Required for rinsate blanks. Required for rinsate blanks

* = Conditionally required. See Notes section.

STRUCTURE NOTES FOR LA. .A.DBF, GIS/Key VERSION 3

FILE LAYOUT FOR ELECTRONIC DOWN LOAD TO GIS/Key

	Remark	Required	Justify	Field Name 10 Character	Type	Len	Dec	Notes (Default parameters)
								Required for rinsate blanks.Required for rinsate blanks.Required for rinsate blanks.
S	lab	X*	L	QAQC_ID	C	25		QA/QC Batch ID's are normally assigned only by labs. This field is used to associate laboratory quality control results (i.e. method blanks, lab blanks, matrix spikes, control samples) with primary results. QAQC_ID entries must uniquely identify each batch of samples analyzed by the laboratory and may not be repeated. Required for method blanks. when brought in called LBatch_ID by GIS
T	lab/ user	X*	L	BLANK_ID	C	25		Field Blank identifier. BLANK_ID is used in combination with CASE_ID to associate field blank results with primary results. Required for field blanks.
U	user	X	L	TCL_ID	C	10		TCL ID, or Template Constituent List is required for all results. A TCL is a data entry template which groups sample results into logical sets. The user defines a TCL to include a lab code (LAB_ID) and optionally a test method (METHOD_ID) and a list of chemicals with reporting limits. GIS/Build can automatically assign a TCL, if METHOD_ID and LAB_ID are provided. In version 3.x this field is not used. The unique combination of LAB_ID plus METHOD_ID are used in its place. The TCL_ID is left in place to accomodate the same deliverable.
V	GIS/ user	X		TCL_TYPE	C	1		TCL Type. Used to differentiate lists of chemicals having the same test method and lab. GIS/Build assigns the GIS/Key default value to this field if it is left blank. In 3.x This field is mapped to the field named LM_CODE (lab method code).
W	lab/user		L	METHOD_ID	C	10		Test Method identification. The import routine will generate error messages if the METHOD_ID is not in the GIS\Key database.
X	lab		L	EXTRACTION	C	6		Extraction method code. The import routine requires definition of entries in the GIS/Key database.
Y	user		L	LAB_ID	C	5		Lab ID code. The import routine requires codes to be defined in GIS\Key database. Lab ID codes must be incorporated into the definition of a TCL_ID.
Z	GIS	internal	R	SEQ_NUM	C	3		Used to order the compounds in a TCL (SEQ_NUM=1 for the first compound on a TCL). When editing results after data import, the sequence number controls the order in which the results are viewed. GIS/Build assigns a SEQ_NUM based on the SEQ_NUM of the chemicals defined in the TCL. If a TCL definition is not found in the project, the SEQ_NUM assignment is based on the order within the TCL in LABDATA.dbf.
AA	user	X*	L	SPLIT_ID	C	10		SPLIT_ID records the TCL_ID of the first split sample of the primary sample. This field is left blank unless the record is for a primary result and a split sample was analyzed. A split sample result entered as a separate record will be orphaned unless this field is filled in for the primary result record.
AB	user	X*	L	SPLIT_ID2	C	10		SPLIT_ID2 records the TCL_ID of the second split sample of the primary sample. This field is left blank unless the record is for a primary result and a second split sample was analyzed. The second split result, entered as a separate record, will be orphaned unless this field is filled in for the primary result record.
AC	lab		L	LSAMP_ID	C	15		Lab sample ID.
AD	lab		L	LSAMP_ID2	C	15		Lab sample ID of duplicates, entered by the lab for known-control sample duplicates and lab spike duplicates.
AE	lab	X*	R	LAB_CAS_ID	C	11		CAS Registry number assigned by the Lab for the constituent. Either a LAB_CAS_ID or a LAB_CHEM must be included with each record. The import routine requires any LAB_CAS_ID to match a CAS_NUM in GIS\Key COMPOUND.DBF.
AF	GIS	internal	R	CAS_NUM	C	11		CAS number from the GIS\Key compound.dbf. This is internally assigned based on a match with LAB_CHEM or LAB_CAS_ID, with preference given to LAB_CAS_ID
AG	lab	X*	L	LAB_CHEM	C	40		Constituent name from lab. Either a LAB_CAS_ID or a LAB_CHEM must be included with each result. If LAB_CHEM is used, then it must match a GIS\Key COMPOUND.DBF alias.
AH	GIS	internal	L	NAME	C	40		Constituent name assigned by comparing LAB_CHEM to COMPOUND.DBF. If LAB_CAS_ID is used without a matching LAB_CHEM, NAME is assigned based on alias 0 in GIS\Key Database.

* = Conditionally required, see Notes column for more detail

STRUCTURE NOTES FOR LA. /A.DBF, GIS/Key VERSION 3

FILE LAYOUT FOR ELECTRONIC DOWN LOAD TO GIS/Key

Remark	Required	Justify	Field Name 10 Character	Type	Len	Dec	Notes (Default parameters)
GIS	Internal	R	ALIAS_NUM	C	2		Alias numbers are internally assigned by comparing LAB_CAS_ID and LAB_CHEM to COMPOUND.DBF.
lab	X*	L	CONC	C	11		Utilized to store constituent concentrations for primary results, duplicates, splits & blanks and concentrations added to spikes and control samples. The field is left blank for surrogates. Warning code generated when CONC and LIMIT1 are both left blank for primary results, duplicates, splits and blanks. Stored as a character string to preserve significant figures. May be expressed in scientific notation (e.g. 1.3E03). All entries must be numeric with the exception of "E" (i.e. scientific notation), "+", or a "+/-". A "+" after concentration amount means greater than while a concentration followed by "+/-" and a number expresses an uncertainty factor.
lab	X*	L	LIMIT1	C	10		Detection Limit 1 for a sample result. Stored as a character string to preserve the significant figures. May be expressed in scientific notation (e.g. 1.3E03). Required for primary results, duplicates, splits & blanks if CONC is blank. Left blank for control samples, matrix spikes and surrogates. All entries must be numeric with the exception of "E" (i.e. scientific notation) or "?". A "?" means that the detection limit is unknown. The entered detection limit should reflect dilution. Generally, LIMIT1 refers to the method detection limit. However, GIS\Key places no restrictions on the use of this field.
lab	X*	L	DL_FLAG	C	2		Place a (<) in this field if the result is non-detect, otherwise leave it blank. Required for primary results, duplicates, splits and blanks. The field is left blank for control samples, matrix spikes and surrogates. For IRPIMS files, DL_FLAG corresponds to the PARVQ field. DL_FLAG corresponds to RF_FLAG on the data entry screen.
lab	X*	L	UNITS	C	5 -		Reported units of concentration. GIS\Key can automatically convert concentrations in mg/l, mg/kg, ug/l, ug/kg, ppm, ppb, and %. Other units are allowed but will generate warning codes.
lab		L	LIMIT2	C	10		Practical quantitation limit for a blank or primary sample result. Format limitations for LIMIT2 are the same as described for LIMIT1. The entered quantitation limit should reflect dilution. GIS\Key places no restrictions on the use of this field.
lab		L	INSTRUMENT	C	20		Identifying number or name of laboratory equipment used to perform the analysis. Used primarily for Air Force reporting.
lab		L	CALIBRATE	C	20		Calibration reference number for the test. Used primarily for Air Force reporting.
GIS	Internal		SPIKE_DUP	L	1		Flag indicating a spike control sample duplicate record. Information is combined in the same record as the spike or control sample.
Lab/ user		L	TEST_ORIG	C	3		Used for spikes to identify the res_code of the sample that was spiked.
Lab		L	S_CONC	C	9		Spike concentration for surrogates if reported. For version 3.x the CONC field is copied into S_CONC for matrix spikes and control samples if the field is empty.
lab	X*		RECOVER	N	3		Constituent Recovery in %. Required for spike, surrogate, and control sample results. The field is left blank for primary samples, duplicates, splits and blanks. Supplied by the Lab for surrogates, lab matrix spikes and known control samples.
lab	X*		D_RECOVER	N	3		Duplicate constituent recovery in %. Required for spike and control sample duplicates results. The field is left blank for primary sample, duplicates, splits, blanks, and surrogates. Supplied by the Lab for lab matrix spikes and known control samples.
Lab/user		L	T_CONC	C	11		Target concentration for spikes (i.e. calculated total of concentration in sample plus concentration spiked).
lab		L	R_CONC	C	11		Measured concentration in control samples and spiked samples. Supplied by the Lab for lab matrix spikes, field matrix spikes, blind control samples and known control samples.
lab		L	D_CONC	C	11		Measured concentration in duplicate control samples and spiked samples. Supplied by the Lab for lab matrix spikes, field matrix spikes, blind control samples, and known control samples.
lab			RPD	N	3		Relative Percent Difference (RPD). Supplied by the Lab for matrix spike and control samples that are run in duplicate. When RES_CODEs [illegible] are used, the RPD is entered with these records.

* = Conditionally required, see Notes column for [illegible]

STRUCTURE NOTES FOR LA .rA.DBF, GIS/Key VERSION 3

FILE LAYOUT FOR ELECTRONIC DOWN LOAD TO GIS/Key

Remark	Required	Justify	Field Name 10 Character	Type	Len	Dec	Notes (Default parameters)
							DL#/DF#/DB#/DK# are used, the RPD is entered with these records.
lab			B_RECOVER	N	3		Lower percent recovery goal for surrogates, spikes, and control samples and spikes reported by the Laboratory.
lab			E_RECOVER	N	3		Upper percent recovery goal for surrogates, spikes, and control samples reported by the Laboratory.
lab			MAX_RPD	N	3		Maximum relative percent difference goal for control samples and spikes reported by the Laboratory.
lab/user	X		PF_CODE	C	1		Preparation Fraction Code: The import routine requires the preparation fraction to be specified and to match a user-defined code in GIS\Key database, standard codes include "T" (total), "D" (dissolved fraction), "A": Acid Rain Extraction, "C" TCLP Extraction, "E" EPTOX Extraction, "S": California Wet Extraction, "W": Deionized Water Extraction.
lab			CR_C	C	1		CLP data concentration "C" column. The import routine requires entry to match a code defined in GIS\Key Database.
lab		L	CR_M	C	2		CLP data method "M" column. The import routine requires entry to match a code defined in GIS\Key Database.
lab		L	CR_Q	C	3		CLP data qualifier "Q" column. The import routine requires entry(s) to match 1 character code(s) defined in the GIS\Key Database.
user		L	ER_Q	C	3		Expert review data qualifier. The import routine requires entry(s) to match 1 character code(s) defined in the GIS\Key Database.
user		L	ER_R1	C	2		Expert review reason 1 "R1" code. The import routine requires entry to match a defined code in GIS\Key Database.
user		L	ER_R2	C	2		Expert review reason 2 "R2" code. The import routine requires entry to match a defined code in GIS\Key Database.
user		L	ER_R3	C	2		Expert review reason 3 "R3" code. The suggested use of this field is to track updates. The import routine requires entry to match a defined code in GIS\Key Database.
user			FILTERED	C	1		Was sample field filtered, <Y>es or <N>o. It is the user's responsibility to ensure that preparation fraction codes reflect field filtering status.
user			PRESERVED	C	1		Sample preservation code, "H" = HCl, "N" = HNO3, "S" = H2S04, "U" = unknown, "" = none, and "O" = other sample preservation code.
user			ICED	C	1		Field preservation Code, "Y" = stored/shipped on ice, "N" = stored/shipped at ambient temperature.
lab	*	L	CUSTODY	C	25		Chain of custody ID. Used to associate travel blanks with primary samples. Required for travel blanks.
lab	*		DILUTION	N	7	2	Dilution factor for sample run ranging from 0.01 to 9999. A required field for all primary results, duplicates, splits and blank results. The field is left blank for all other results.
GIS/user	X*		PROG_TYPE	C	1		Program codes are required for all results. The import routine requires codes to be defined in GIS\Key Database. Program codes must be identical for all chemical results for a particular TCL. GIS/Build assigns the GIS/Key default value to this field if it is left blank.
lab			RECEIVED	D	8		Date sample was received by the Lab (mm/dd/yy format).
lab			REC_TIME	C	5		Time sample was received by the Lab (##:## 24hr format).
lab			PREPARED	D	8		Date sample was prepared or extracted by the Lab (mm/dd/yy format).
lab			PREP_TIME	C	5		Time sample was prepared or extracted by the Lab (##:## 24hr format).
lab			TESTED	D	8		Date sample was analyzed by the Lab (mm/dd/yy format for American Version).
lab			TEST_TIME	C	5		Time sample was analyzed by the Lab (##:## 24hr format).
lab			REPORTED	D	8		Date sample was reported by the Lab (mm/dd/yy format for American Version).
lab			APPROVED	D	8		Date sample was result approved by the Lab (mm/dd/yy format for American Version).

STRUCTURE NOTES FOR LA. .A.DBF, GIS/Key VERSION 3

FILE LAYOUT FOR ELECTRONIC DOWN LOAD TO GIS/Key

Remark	Required	Justify	Field Name 10 Character	Type	Len	Dec	Notes (Default parameters)
lab/ user		L	LOT_NUMBER	C	4		RPIMS lot control number (LOTCTLNUM) used to associate primary samples with QC.
lab/ user		L	SA_CODE	C	3		RPIMS sample type code (SA_CODE) used to identify the type of sample collected.
lab/ user		L	MATRIX	C	2		RPIMS sampling matrix code.
lab/ user			BASIS	C	1		Used to indicate whether results are reported on a (W)et or (D)ry basis. Required for soil results.
lab/ user			MOISTURE	N	4	1	Percent moisture of a soil sample.
GIS	Internal	L	EXC_CODE	C	30		Exception codes are generated by the import routine to alert the user to problems in the LABDATA.DBF file which must be addressed before the data can be appended to the project database.
GIS	Internal	L	WARN_CODE	C	20		Warning codes are generated by the import routine to alert the user to possible problems in LABDATA.DBF file. Warning codes do not prevent user from appending LABDATA.DBF file to the project database.
GIS	Internal		BUILD_FLAG	C	1		Internal flag used during the GIS\Build process.
lab/ user		L	NOTE	C	20		Lab/user notes for samples (i.e. placed in CSAMPLE.DBF). May be expanded to 50 characters.
lab/user		L	TEST_NOTE	C	20		Lab/user notes for tests (i.e. placed in CTEST.DBF). May be expanded to 50 characters.
Lab		L	UNCERT_1	C	10		Radiological uncertainty.
Lab		L	UNCERT_2	C	10		Radiological uncertainty.
Lab		L	RAD_LIMIT3	C	10		Third reporting limit associated with radiological results.
Lab		L	LR_Q	C	3		Laboratory qualifier field for radiological results.
Lab/user	X*		RAD_FLAG	L	1		Logical field set "T" (true) for radiological results. Assumed false if blank. Required for radiological data.
Lab			DUP_RPD	N	3		Relative percent difference goal for primary duplicates.
Lab			SPLIT_RPD	N	3		Relative percent difference goal for primary splits.

RES CODES:	
PP0<1-9>	Primary Results PPO1 , Dilution PP02
PD[1-9]<1-9>	Duplicate
PS[1-2]<1-9>	Split
BF[1-9]<1-9>	Field Blanks
BL[1-9]<1-9>	Lab Blanks
BM[1-9]<1-9>	Method Blanks
BR[1-9]<1-9>	Rinsate Blanks
BT[1-9]<1-9>	Travel Blanks
CB[1-9]<1-9>	Blind Control Sample
CK[1-9]<1-9>	Known Control Sample
SL[1-9]<1-9>	Lab Spike
SF[1-9]<1-9>	Field Spike
DL[1-9]<1-9>	Duplicate Lab Spike

EXCEPTION CODES: (an exc_code indicates bad or missing data)
01= Invalid SAMP_TYPE (S or W)
02= Invalid RES_CLASS (First Charcater of RES_CODE)
03= Invalid RES_TYPE (Last three charcters of RES_CODE)
04= LAB_ID Required
05= METH_ID Required
06= PF_CODE Required
07= LBATCH_ID Required
08= Invalid TEST_ORIG
09= Invalid RES_ORIG
10= SAMP_DATE required
11= Invalid SAMP_TIME
12= SAMP_DEPTH to precise
13= Undefined PT_CODE

* = Conditionally required, see Notes column for more detail

STRUCTURE NOTES FOR LA. .A.DBF, GIS/Key VERSION 3

FILE LAYOUT FOR ELECTRONIC DOWN LOAD TO GIS/Key

RES CODES: (Continued)
DF[1-9]<1-9> Duplicate Field Spike
DB[1-9]<1-9> Duplicate Blind Control Sample
DK[1-9]<1-9> Duplicate Known Control Sample
Numbers in [] denote test sequence numbers
Numbers in <> denote result set occurrence
WARNING CODES:
01=Undefined PF_CODE (Project)
02=Unknown SITE_ID (Project)
03=Undefined PT_CODE (Project)
04=Unknown CAS_NUM (Shared)
05=Unknown COMP_NAME (Shared)
06=Undefined / Unknown C_UNIT
07=Undefined / Unknown R_UNIT
08=Undefined LM_CODE (Project)
20=SAMP_DATE Year before 1990
21=RECEIVED Year before 1990
22=PREPARED Year before 1990
23=TESTED Year before 1990
24=APPROVED Year before 1990
25=REPORTED Year before 1990
80=Dataset Duplicates (These should be viewed before sending to project, otherwise only one set will be sent, leaving "duplicate" sets behind) This was an EXCEPTION in previous versions.
99=No Parent in current dataset or project

EXCEPTION CODES: (Continued)
14= Invalid FILTERED
15= Invalid ICED
16= Invalid PRESERVED
17= CASE_ID required.
18= BLANK_ID required
19= Undefined PRIME_LAB
20= ALIAS_NUM required
21= Embedded space in C_UNIT
22= Invalid CONC
23= Invalid LIMIT1
24= Invalid LIMIT2
25= Negative DUP_RPD
26= Negative SPLIT_ID
27= Negative DILUTION
28= Invalid BASIS
29= Negative MOISTURE
30= Invalid S_CONC
31= Invalid T_CONC
32= Invalid R_CONC
33= Negative RECOVER
34= SPIKE_DUP (data and no flag)
35= Invalid D_CONC
36= Negative D_RECOVER
37= Negative RPD
38= Negative B_RECOVER
39= Negative E_RECOVER or below B_RECOVER
40= Negative MAX_RPD
41= Unknown CR_C
42= Unknown CR_M
43= Unknown CR_Q1
44= Unknown CR_Q2
45= Unknown CR_Q3
46= Unknown ER_Q1
47= Unknown ER_Q2
48= Unknown ER_Q3
49= Unknown ER_R1
50= Unknown ER_R2
51= Unknown ER_R3
52= RECEIVED before SAMP_DATE
53= Invalid REC_TIME
54= PREPARED before RECEIVED / SAMP_DATE

* = Conditionally required, see Notes column for more detail

FILE LAYOUT FOR ELECTRONIC DOWN LOAD TO GIS/Key

EXCEPTION CODES: (Continued)
55= Invalid PREP_TIME
56= TESTED before PREPARED / RECEIVED / SAMP_DATE
57= Invalid TEST_TIME
58= RMETH_ID required
59= Embedded space in R_UNIT
60= Invalid R_CONC
61= Invalid UNCERT_1
62= Invalid UNCERT_2
63= Invalid RLIMIT_1
64= Invalid RLIMIT_2
65= Invalid RLIMIT_3
66= Unknown LR_Q1
67= Unknown LR_Q2
68= Unknown LR_Q3
69= SAMP_DEPTH out of range of S_DEPTH and E_DEPTH
70= S_DEPTH greater than E_DEPTH
71= Undefined CAS_NUM
72= Invalid LM_CODE

DUPLICATE RECORD KEY FOR PRIMARIES, DUPLICATES AND SPLITS (RES_CODE = PP0#, PD##, PS##):

SAMP_TYPE + SITE_ID + SAMP_DATE + SAMP_TIME + SAMP_DEPTH + RES_CODE + LAB_ID + METHOD_ID + PF_CODE + CAS_NUM

DUPLICATE RECORD KEY FOR BLANKS (RES_CODE = BR##, BM##, BT##, BF##):

SAMP_TYPE + CASE_ID + BLANK_ID + RES_CODE + LAB_ID + METHOD_ID + PF_CODE + CAS_NUM

DUPLICATE RECORD KEY FOR SPIKES AND CONTROL SAMPLES (RES_CODE = SF##, SL##, CB##, CK##):

SAMP_TYPE + CASE_ID + QAQC_ID + RES_CODE + LAB_ID + METHOD_ID + PF_CODE + CAS_NUM

ASSIGNING RES_CODE SEQUENCE NUMBERS [1-9]:

The test sequence number refers to a sample sequence used to differentiate test results that otherwise have the same primary key. For example, a test sequence number of 2 for a duplicate sample would mean that the result set is for the second of 2 duplicate samples originating from the same primary sample. A test sequence number of 2 for a method blank would mean that 2 method blanks were run for the same batch (QAQC_ID). Note that matrix spikes and control samples and their duplicates should always have matching test sequence numbers.

ASSIGNING RES_CODE RESULT SET OCCURRENCES <1-9>:

The result set occurrence is used to differentiate multiple column or dilution runs of the same sample and test method that otherwise have the same primary key. Occurrence = 1 is the set of record and the set used for reporting and graphics.

ASSIGNING RES_ORIG CODES

RES_ORIG codes are equal to the last three characters of RES_CODES for all results except when multiple column/dilution runs are being reported and the result being reported is for the combined "best estimate" result. In this case, the RES_ORIG code equals the last three characters of the RES_CODE of the originating column/dilution run.

* = Conditionally required, see Notes column for more detail

STRUCTURE NOTES FOR LA. .I'A.DBF, GIS/Key VERSION 3

FILE LAYOUT FOR ELECTRONIC DOWN LOAD TO GIS/Key

ADDITIONAL GUIDANCE FOR FIELD/LAB MATRIX SPIKE DUPLICATES AND BLIND/KNOWN CONTROL SAMPLE DUPLICATES:

Field/lab matrix spike duplicate and blind/known control sample duplicate concentrations are always entered in the D_CONC field, with recoveries in the D_RECOVER field. Spike and control sample duplicates may be entered as individual records using RES_CODEs DL##, DF##, DB##, DK##, or can be combined with the record storing the original spike or control sample when using RES_CODEs SL##, SF##, CB##, CK##.

* = Conditionally required, see Notes column for more detail

ATTACHMENT B

CSAMPLE.DBF

1 samp_type	C 1	Matrix, <S>oil/<W>ater
2 site_id	C 15	Site ID
3 samp_date	D 8	Sample date
4 samp_time	C 5	Sample time
5 samp_depth	N 8 3	Sample depth
6 s_depth	N 8 3	Sample depth range start
7 e_depth	N 8 3	Sample depth range end
8 pt_code	C 1	Program code
9 samp_by	C 4	Sampled by
10 samp_id	C 15	Field Sample ID
11 case_id	C 5	Case ID
12 sdg_id	C 25	Sample Delivery Group ID
13 custody	C 25	Custody ID
14 blank_id	C 25	Field Blank ID
15 lsamp_id	C 15	Lab Sample ID
16 filtered	C 1	Field Filtered, <Y>es/<N>o/<U>nknown
17 iced	C 1	Field Iced, <Y>es/<N>o/<U>nknown
18 preserved	C 1	Field Preserved, <H>/<N>/<S>/<O>/<U>/< >
19 received	D 8	Lab received date
20 rec_time	C 5	Lab received time
21 approved	D 8	Date approved
22 appr_by	C 3	Approved by
23 reported	D 8	Date reported
24 note	C 50	Notes

CTEST.DBF

1 samp_type	C	1	Sample type, [redacted]/<S>oil/<W>ater
2 site_id	C	15	Site ID
3 samp_date	D	8	Sample date
4 samp_time	C	5	Sample time
5 samp_depth	N	8 3	Sample depth
6 pt_code	C	1	Program code
7 lab_id	C	5	Lab ID
8 meth_id	C	10	Method ID
9 lm_code	C	1	Lab Method Type
10 pf_code	C	1	Preparation Fraction
11 res_type	C	3	<P>rimary+<0> + set<#>
12 samp_id	C	15	Field Sample ID
13 case_id	C	5	Case ID
14 sdg_id	C	25	Sample Delivery Group ID
15 custody	C	25	Custody ID
16 blank_id	C	25	Field Blank ID
17 lsamp_id	C	15	Lab Sample ID
18 lbatch_id	C	25	Lab Batch ID
19 filtered	C	1	Field Filtered, <Y>es/<N>o/<U>nknown
20 iced	C	1	Field Iced, <Y>es/<N>o/<U>nknown
21 preserved	C	1	Field Preserved, <H>/<N>/<S>/<O>/<U>/< >
22 extract_id	C	6	Extraction Method ID
23 dilution	N	7 2	Dilution factor
24 basis	C	1	Basis <D>ry/<W>et, for Soil
25 moisture	N	4 1	Percent moisture, for Soil
26 res_column	N	1	Test column <1-9>, 0 if unknown
27 instrument	C	20	Instrument ID
28 calibrate	C	20	Instrument calibration reference
29 received	D	8	Lab received date
30 rec_time	C	5	Lab received time
31 prepared	D	8	Lab extraction date
32 prep_time	C	5	Lab extraction time
33 tested	D	8	Lab test date
34 test_time	C	5	Lab test time
35 verify_by	C	3	Verified by
36 certify_by	C	3	Certified by
37 approved	D	8	Date approved
38 appr_by	C	3	Approved by
39 reported	D	8	Date reported
40 lot_number	C	4	Lot Control Number (for IRPIMS)
41 sa_code	C	3	SA Code (for IRPIMS)
42 irp_matrix	C	2	Matrix (for IRPIMS)
43 pvc_code	C	2	PVC Code (for IRPIMS)
44 note	C	50	Notes

CRESULT.DBF

1 samp_type	C	1	Sample type, [redacted]/<S>oil/<W>ater
2 site_id	C	15	Site ID
3 samp_date	D	8	Sample date
4 samp_time	C	5	Sample time
5 samp_depth	N	8 3	Sample depth
6 pt_code	C	1	Program code
7 lab_id	C	5	Lab ID
8 meth_id	C	10	Method ID
9 lm_code	C	1	Lab Method Type
10 pf_code	C	1	Preparation Fraction
11 res_type	C	3	<P>rimary+<0> + set<#>
12 cas_num	C	11	CAS number
13 alias_num	C	1	Alias number
14 c_unit	C	5	Units
15 conc	C	11	Tested concentration
16 rep_flag	C	2	Report flag (e.g. "< ", "TR") [nee dl_flag]
17 limit_1	C	10	Limit 1 [nee det_limit]
18 limit_2	C	10	Limit 2 [nee pq_limit]
19 res_orig	C	3	Result type of originating test
20 cr_c	C	1	CLP Review C qualifier
21 cr_m	C	2	CLP Review M qualifier
22 cr_q1	C	1	CLP Review Q qualifier 1
23 cr_q2	C	1	CLP Review Q qualifier 2
24 cr_q3	C	1	CLP Review Q qualifier 3
25 er_q1	C	1	Expert Review Q qualifier 1
26 er_q2	C	1	Expert Review Q qualifier 2
27 er_q3	C	1	Expert Review Q qualifier 3
28 er_r1	C	2	Expert Review Reason 1
29 er_r2	C	2	Expert Review Reason 2
30 er_r3	C	2	Expert Review Reason 3
31 dup_rpd	N	3	Max. Relative Percent Difference - Duplicate
32 split_rpd	N	3	Max. Relative Percent Difference - Split

CTESTD.DBF

1	samp_type	C 1	Sample type, [redacted]/<S>oil/<W>ater
2	site_id	C 15	Site ID
3	samp_date	D 8	Sample date
4	samp_time	C 5	Sample time
5	samp_depth	N 8 3	Sample depth
6	pt_code	C 1	Program code
7	lab_id	C 5	Lab ID
8	prime_lab	C 5	Lab ID of Primary, for Splits
9	meth_id	C 10	Method ID (Same as Primary)
10	lm_code	C 1	Lab Method Type
11	pf_code	C 1	Preparation Fraction
12	res_type	C 3	<D>up/<S>plit + Dup/Split test<#> + set<#>
13	samp_id	C 15	Field Sample ID
14	case_id	C 5	Case ID
15	sdg_id	C 25	Sample Delivery Group ID
16	custody	C 25	Custody ID
17	blank_id	C 25	Field Blank ID
18	lsamp_id	C 15	Lab Sample ID
19	lbatch_id	C 25	Lab Batch ID
20	filtered	C 1	Field Filtered, <Y>es/<N>o/<U>nknown
21	iced	C 1	Field Iced, <Y>es/<N>o/<U>nknown
22	preserved	C 1	Field Preserved, <H>/<N>/<S>/<O>/<U>/< >
23	extract_id	C 6	Extraction Method ID
24	dilution	N 7 2	Dilution factor
25	basis	C 1	Basis <D>ry/<W>et, for Soil
26	moisture	N 4 1	Percent moisture, for Soil
27	res_column	N 1	Test column <1-9>
28	instrument	C 20	Instrument ID
29	calibrate	C 20	Instrument calibration reference
30	received	D 8	Lab received date
31	rec_time	C 5	Lab received time
32	prepared	D 8	Lab extraction date
33	prep_time	C 5	Lab extraction time
34	tested	D 8	Lab test date
35	test_time	C 5	Lab test time
36	verify_by	C 3	Verified by
37	certify_by	C 3	Certified by
38	approved	D 8	Date approved
39	appr_by	C 3	Approved by
40	reported	D 8	Date reported
41	lot_number	C 4	Lot Control Number (for IRPIMS)
42	sa_code	C 3	SA Code (for IRPIMS)
43	irp_matrix	C 2	Matrix (for IRPIMS)
44	pvc_code	C 2	PVC Code (for IRPIMS)
45	note	C 50	Notes

CRESULTD.DBF

1 samp_type	C	1	Sample type, [redacted]/<S>oil/<W>ater
2 site_id	C	15	Site ID
3 samp_date	D	8	Sample date
4 samp_time	C	5	Sample time
5 samp_depth	N	8 3	Sample depth
6 pt_code	C	1	Program code
7 lab_id	C	5	Lab ID
8 meth_id	C	10	Method ID
9 lm_code	C	1	Lab Method Type
10 pf_code	C	1	Preparation Fraction
11 res_type	C	3	<D>up/<S>plit + Dup/Split test<#> + set<#>
12 cas_num	C	11	CAS number
13 alias_num	C	1	Alias number
14 c_unit	C	5	Units
15 conc	C	11	Tested concentration
16 rep_flag	C	2	Report flag (e.g. "< ", "TR") [nee dl_flag]
17 limit_1	C	10	Limit 1 [nee det_limit]
18 limit_2	C	10	Limit 2 [nee pq_limit]
19 res_orig	C	3	Result type of originating test
20 cr_c	C	1	CLP Review C qualifier
21 cr_m	C	2	CLP Review M qualifier
22 cr_q1	C	1	CLP Review Q qualifier 1
23 cr_q2	C	1	CLP Review Q qualifier 2
24 cr_q3	C	1	CLP Review Q qualifier 3
25 er_q1	C	1	Expert Review Q qualifier 1
26 er_q2	C	1	Expert Review Q qualifier 2
27 er_q3	C	1	Expert Review Q qualifier 3
28 er_r1	C	2	Expert Review Q Reason 1
29 er_r2	C	2	Expert Review Q Reason 2
30 er_r3	C	2	Expert Review Q Reason 3

CTESTB.DBF

1 samp_type	C	1	Sample type, [redacted]/<S>oil/<W>ater
2 case_id	C	5	Case ID
3 blank_id	C	25	<F>=ID / <L/M>=lbatch_id / <R>=sdg_id / <T>=custody
4 lab_id	C	5	Lab ID
5 meth_id	C	10	Method ID
6 pf_code	C	1	Preparation Fraction
7 res_type	C	3	<F>ield/<L>ab/<M>ethod/<R>lnsate/<T>ravel + test<#> + set<#>
8 site_id	C	15	Sample site, for <F>/<R> blanks
9 samp_date	D	8	Sample date
10 samp_time	C	5	Sample time
11 samp_depth	N	8 3	Sample depth
12 pt_code	C	1	Program code
13 samp_id	C	15	Field Sample ID
14 sdg_id	C	25	Sample Delivery Group ID
15 custody	C	25	Custody ID
16 lsamp_id	C	15	Lab Sample ID
17 lbatch_id	C	25	Lab Batch ID
18 filtered	C	1	Field Filtered, <Y>es/<N>o/<U>nknown
19 iced	C	1	Field Iced, <Y>es/<N>o/<U>nknown
20 preserved	C	1	Field Preserved, <H>/<N>/<S>/<O>/<U>/< >
21 extract_id	C	6	Extraction Method ID
22 dilution	N	7 2	Dilution factor
23 basis	C	1	Basis <D>ry/<W>et, for Soil
24 moisture	N	4 1	Percent moisture, for Soil
25 res_column	N	1	Test column <1-9>
26 instrument	C	20	Instrument ID
27 calibrate	C	20	Instrument calibration reference
28 received	D	8	Lab received date
29 rec_time	C	5	Lab received time
30 prepared	D	8	Lab extraction date
31 prep_time	C	5	Lab extraction time
32 tested	D	8	Lab test date
33 test_time	C	5	Lab test time
34 verify_by	C	3	Verified by
35 certify_by	C	3	Certified by
36 approved	D	8	Date approved
37 appr_by	C	3	Approved by
38 reported	D	8	Date reported
39 lot_number	C	4	Lot Control Number (for IRPIMS)
40 sa_code	C	3	SA Code (for IRPIMS)
41 irp_matrix	C	2	Matrix (for IRPIMS)
42 pvc_code	C	2	PVC Code (for IRPIMS)
43 note	C	50	Notes

CBLANK.DBF

1 samp_type	C	1	Sample type, [redacted]/<S>oil/<W>ater
2 case_id	C	5	Case ID
3 blank_id	C	25	Blank ID
4 lab_id	C	5	Lab ID
5 meth_id	C	10	Method ID
6 pf_code	C	1	Preparation Fraction
7 res_type	C	3	Blank type, <F/L/M/R/T> + test<#> + set<#>
8 pt_code	C	1	Program code
9 cas_num	C	11	CAS number
10 alias_num	C	1	Alias number
11 c_unit	C	5	Units
12 conc	C	11	Concentration
13 rep_flag	C	2	Report flag [nee dl_flag]
14 limit_1	C	10	Limit 1 [nee det_limit]
15 limit_2	C	10	Limit 2 [nee pq_limit]
16 cor_action	C	30	Corrective action
17 res_orig	C	3	Result type of originating test
18 cr_c	C	1	CLP Review C qualifier
19 cr_m	C	2	CLP Review M qualifier
20 cr_q1	C	1	CLP Review Q qualifier 1
21 cr_q2	C	1	CLP Review Q qualifier 2
22 cr_q3	C	1	CLP Review Q qualifier 3
23 er_q1	C	1	Expert Review Q qualifier 1
24 er_q2	C	1	Expert Review qualifier 2
25 er_q3	C	1	Expert Review qualifier 3
26 er_r1	C	2	Expert Review Reason 1
27 er_r2	C	2	Expert Review Reason 2
28 er_r3	C	2	Expert Review Reason 3

ATTACHMENT C

CAS Number	Compound Name
7440-47-8	Chromium (total)
GIS-110-012	TOC
GIS-113-001	Total PCBs
GIS-130-312	m/p-xylene
GIS-140-016	Total VOC TICs
GIS-140-017	Total PCBs PPM
GIS-140-018	Total SVOC TICs
GIS-400-001	BZ 1
GIS-400-002	BZ 101/90
GIS-400-003	BZ 105
GIS-400-004	BZ 107
GIS-400-005	BZ 110/77
GIS-400-006	BZ 114
GIS-400-007	BZ 118
GIS-400-008	BZ 119
GIS-400-009	BZ 128
GIS-400-010	BZ 132/168
GIS-400-011	BZ 135/144
GIS-400-012	BZ 136
GIS-400-013	BZ 137
GIS-400-014	BZ 138/163
GIS-400-015	BZ 14
GIS-400-016	BZ 141
GIS-400-017	BZ 146
GIS-400-018	BZ 149/123
GIS-400-019	BZ 151
GIS-400-020	BZ 153/184
GIS-400-021	BZ 156/171
GIS-400-022	BZ 157
GIS-400-023	BZ 158
GIS-400-024	BZ 16/32
GIS-400-025	BZ 166
GIS-400-026	BZ 167
GIS-400-027	BZ 169
GIS-400-028	BZ 17
GIS-400-029	BZ 170
GIS-400-030	BZ 172
GIS-400-031	BZ 174
GIS-400-032	BZ 176
GIS-400-033	BZ 177
GIS-400-034	BZ 178/126
GIS-400-035	BZ 18
GIS-400-036	BZ 180
GIS-400-037	BZ 183
GIS-400-038	BZ 185
GIS-400-039	BZ 187/182
GIS-400-040	BZ 189
GIS-400-041	BZ 19
GIS-400-042	BZ 190
GIS-400-043	BZ 194
GIS-400-044	BZ 195

CAS Number	Compound Name
GIS-400-045	BZ 197
GIS-400-046	BZ 199
GIS-400-047	BZ 201
GIS-400-048	BZ 202
GIS-400-049	BZ 203/196
GIS-400-050	BZ 206
GIS-400-051	BZ 208
GIS-400-052	BZ 209
GIS-400-053	BZ 22
GIS-400-054	BZ 24
GIS-400-055	BZ 25
GIS-400-056	BZ 26
GIS-400-057	BZ 27
GIS-400-058	BZ 28
GIS-400-059	BZ 29
GIS-400-060	BZ 31
GIS-400-061	BZ 33
GIS-400-062	BZ 37/42
GIS-400-063	BZ 4
GIS-400-064	BZ 40
GIS-400-065	BZ 44
GIS-400-066	BZ 45
GIS-400-067	BZ 46
GIS-400-068	BZ 47
GIS-400-069	BZ 48
GIS-400-070	BZ 49
GIS-400-071	BZ 5
GIS-400-072	BZ 52
GIS-400-073	BZ 53
GIS-400-074	BZ 56
GIS-400-075	BZ 59
GIS-400-076	BZ 6
GIS-400-077	BZ 60/92
GIS-400-078	BZ 63
GIS-400-079	BZ 64/41
GIS-400-080	BZ 65
GIS-400-081	BZ 66/95
GIS-400-082	BZ 7
GIS-400-083	BZ 70
GIS-400-084	BZ 71
GIS-400-085	BZ 74
GIS-400-086	BZ 76
GIS-400-087	BZ 8
GIS-400-088	BZ 82
GIS-400-089	BZ 84
GIS-400-090	BZ 85
GIS-400-091	BZ 87/81
GIS-400-092	BZ 91
GIS-400-093	BZ 97
GIS-400-094	BZ 99
GIS-400-095	Total PCB Congeners

CAS Number	Compound Name
GIS-610-001	Temperature
GIS-610-002	Barometric Pressure
GIS-610-003	Total FID Volatiles